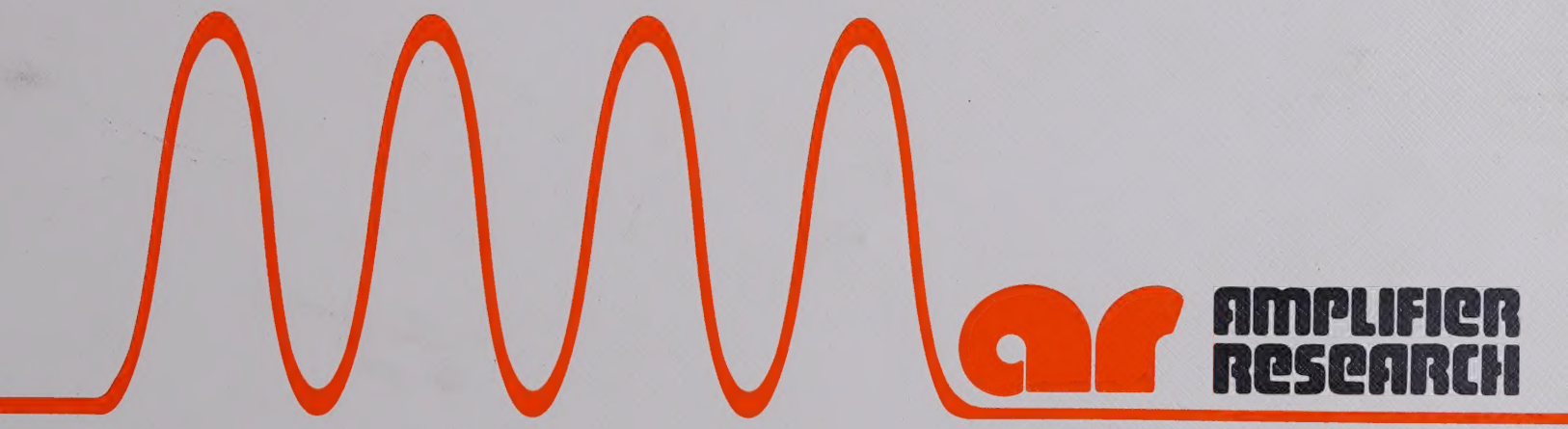


ar AMPLIFIER RESEARCH

10260

Operating and Service Manual

MODEL

DC5000

PART NUMBER

1002363-501

SERIAL NUMBER

10260

AMPLIFIER RESEARCH

Souderton, PA 18964-9990 USA

TEL 215-723-8181 TWX 510-661-6094 FAX 215-723-5688

OPERATING INSTRUCTIONS

MODEL DC5000

WARNING:

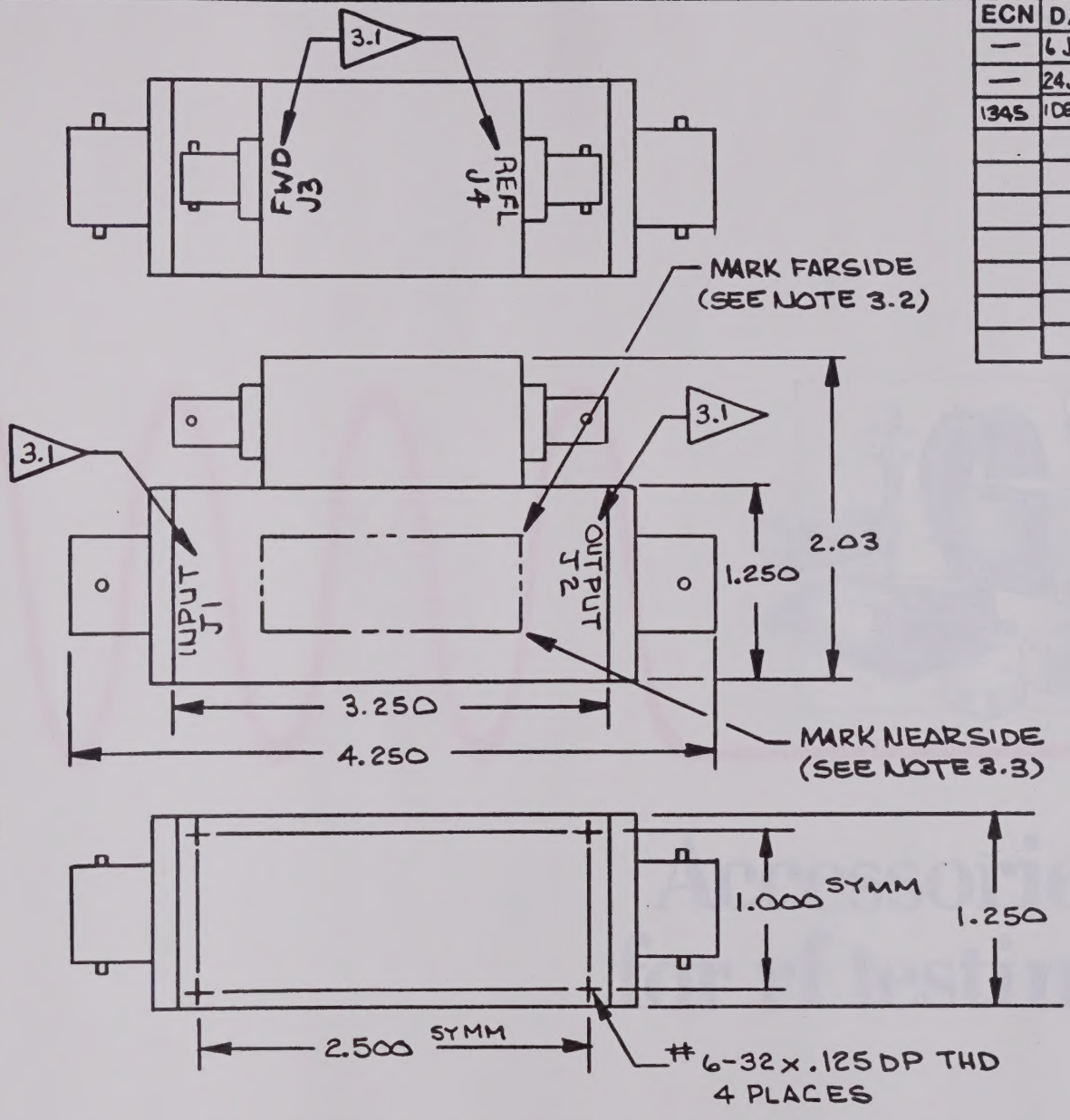
DO NOT EXCEED MAXIMUM POWER RATINGS.
DO NOT DROP. INTERNAL COMPONENTS ARE FRAGILE.

Operation of the Model DC5000 is quite simple. The input signal is fed into the jack (J1) marked Input and the output is taken from the Jack (J2) marked Output. The input and output jacks on the unit are Type C (Female).

Forward coupled output is taken from Jack (J4) marked FWD, and REVERSE coupled output is taken from Jack (J3) marked REV. Both coupled output jacks on the unit are Type BNC (Female).

See Specification Sheet for detailed specification.

ECN	DATE	REV
—	6 JUN 86	—
—	24 JUN 86	A
1345	10 DEC 87	B



ITEM	PART NO.	DESCRIPTION	MARK	FIN	MATL
QTY. REQD.	PARTS LIST				

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ±.010.

DC5000
USED ON MODEL

DRAWN J. VOGENBERG
DATE 24JUN 86
CHKD
DATE
MECH
DATE
ELEC
DATE

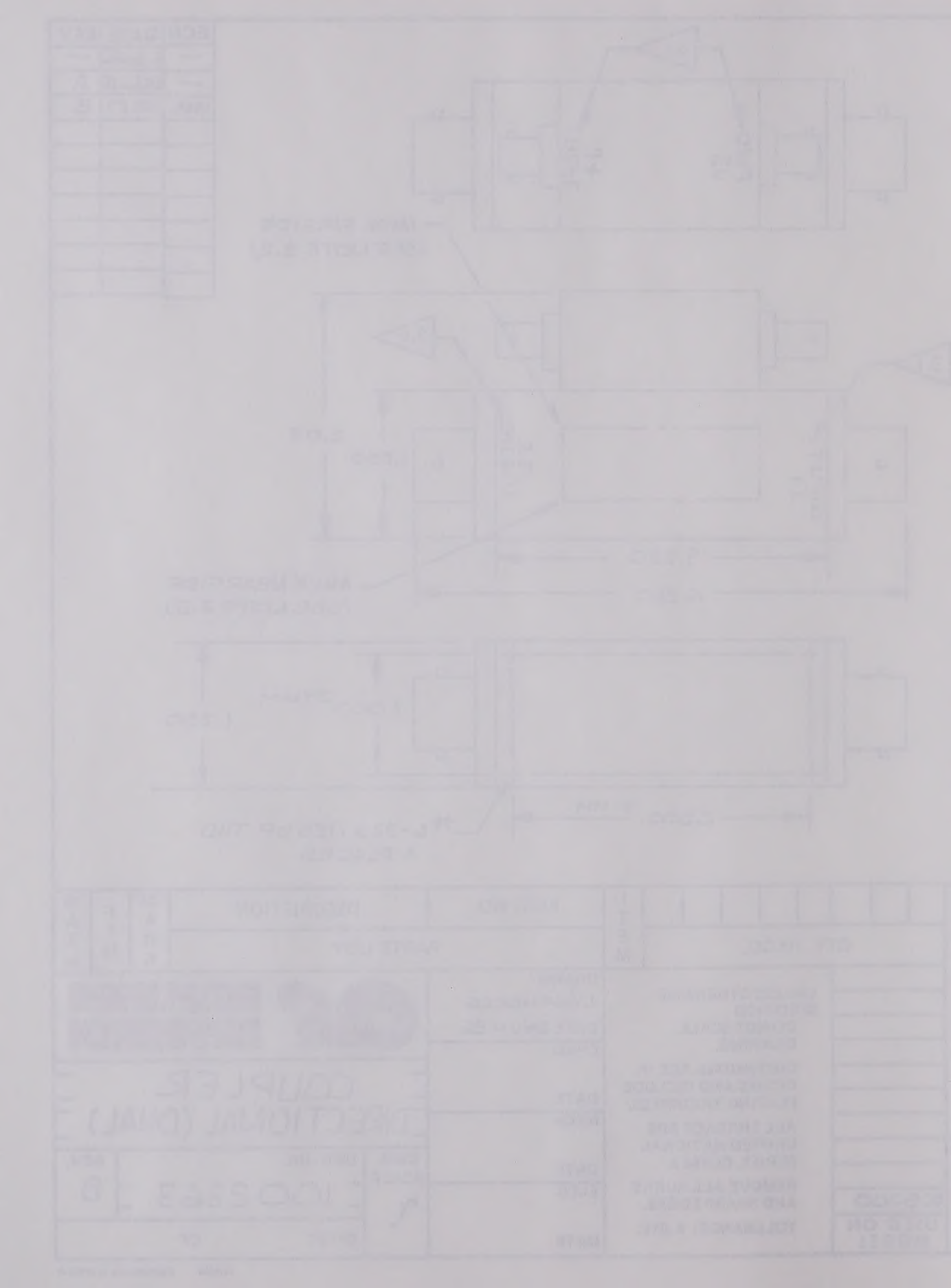
AMPLIFIER RESEARCH

COUPLER DIRECTIONAL (DUAL)

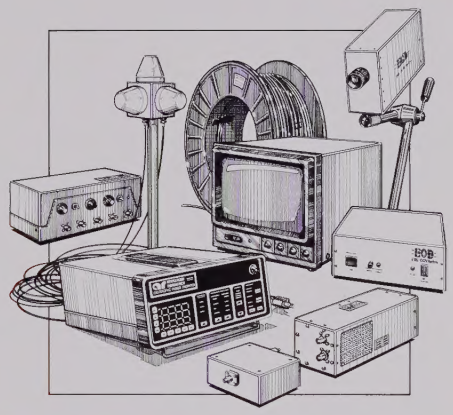
DWG. SCALE: 3/4
DWG. NO. 1002363
REV. B
SHEET OF

FORM 1 REV0378

N10585 CENTENNIAL BLUEPRINT



March 1989



Accessories for rf testing

1969–1989
20th Anniversary
AMPLIFIER RESEARCH

AMPLIFIER RESEARCH

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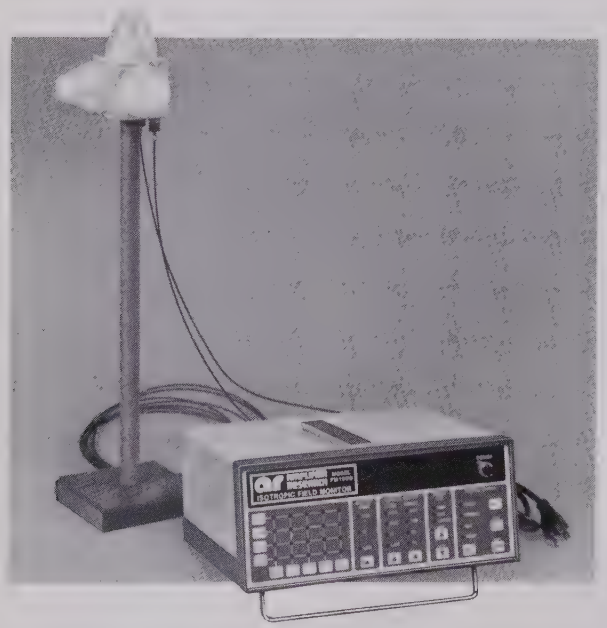
New Ultra-broadband field monitor system

Model FM1000

- **Single isotropic probe covers five decades (10 kHz to 1 GHz)**
- **1- to 300-V/m sensitivity**

Here is the first electric-field monitoring system that covers the entire rf spectrum to 1 GHz without bandbreaks or pauses for changing sensors. All measurement, control, and alarm operations are performed by this compact and efficient two-component system—the sensor probe inside the shielded room, and the master control console outside.



The Amplifier Research Model FM1000 provides two digital outputs (to IEEE-488 and RS-232 instrumentation), two switch-selectable 0-4 Vdc analog outputs, audible and SPDT overrange and power-loss alarm, and a highly readable LED digital display—all controlled at the front-panel keypad.

The small isotropic probe (Model FP1000) with its integral battery-powered transceiver communicates with the control station through a twin fiberoptic cable. While a single sensor probe covers the frequency spectrum from 10 kHz to 1 GHz, up to four of these probes may be connected to the monitor for measuring field strength at various points in the shielded room. The operator can select high, low, or average reading from any or all selected probes, or any single axis of the three-axis probe, thus enjoying complete flexibility in choice of signal input and automated leveling for EMC testing.

SPECIFICATIONS

Model FM1000 control center and system

Sensitivity: 1 to 300 V/m

Frequency response: 10 kHz-1000 MHz ± 2 dB

Inputs: Up to 4 independent probes

Overload withstand: 1000 V/m on any range

Outputs: LED digital display, resolution 0.1 V/m
IEEE-488 interface
RS-232 interface
Analog (BNC): 0-4 Vdc proportional to % of selected range; log proportional to log of displayed value
Alarm—audible signal and SPDT contact (2.5A/120Vac)

Power requirement: 120/240 Vac, 50/60 Hz, switch selectable, 1A max.

Model FP1000 Electric Field Probe

Isotropicity: ± 0.5 dB on three orthogonal axes

Sensitivity: 1-300 V/m

Frequency response: 10 kHz-1000 MHz ± 2 dB

Sampling rate: 1 to 16 samples/sec

Power requirement: NiCad battery, rechargeable through charging jack. Charger provided with each probe. Battery operates up to 17 hours on a full charge, and is easily replaceable through access panel.

General:

Dimensions, Model FM1000 (W × H × D): 28 × 16.5 × 20.3 cm (11 × 6.5 × 8 in.); optional rack mount available.

Dimensions, Model FP1000: 6.35 cm (2.50 in.) cube with sensor radomes on three sides. Total package fits within 20.3 cm (8 in.) spherical area dia.; 1/4-20 tapped hole in sensor base for mounting.

Weight, Model FM 1000: 6.8 kg (15 lb);

Weight, Model FP 1000: 400 g (14 oz);

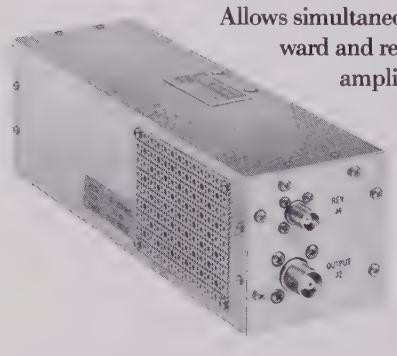
Operating temperature range: 10-40°C (50-122°F) @ 5-95% RH non-condensing.

Dual-directional couplers

Model DC2000

• 10 kHz to 220 MHz, 2500 watts cw

Permits coupling of laboratory oscilloscopes, voltmeters, power meters, and spectrum analyzers to high-power broadband rf amplifiers and test systems, including those that employ our L series amplifiers (up to 2500 watts cw). Allows simultaneous monitoring of forward and reverse power, useful for amplifier leveling and load protection.



Model DC3001

• 100 kHz to 1000 MHz, 50 watts cw

Provides excellent performance over its extremely broad bandwidth. Couples laboratory monitoring equipment to the power output of up to 50-watt cw power amplifiers. Ideally suited for dual-directional use with our ultrabroadband W series amplifiers. Compact and lightweight.

Model DC4000

• 10 kHz to 100 MHz, 15,000 watts cw

Specially designed for use in extremely high-power rf test systems. Dual-directional coupling capability. Compatible in operating bandwidth and power range with our highest-power Model 10,000L broadband amplifier.

Model DC5000

• 220-400 MHz, 2500 watts cw

The Model DC5000 dual-directional coupler extends performance characteristics similar to those of our popular Model DC2000 over the adjacent higher frequency range to 400 MHz. Its bandwidth and power-handling capabilities are compatible with those of our Series HA rf amplifiers.

Model DC6000

• 400-1000 MHz, 1500 watts cw

This dual-directional coupler serves the next higher frequency band, to 1000 MHz, immediately above that covered by the Model DC5000, and handles continuous power up to 1500 watts. It is compatible in power capability and bandwidth with our new Series HB amplifiers.

SPECIFICATIONS

	DC2000	DC3001	DC4000	DC5000	DC6000
Frequency range	10 kHz-220 MHz	100 kHz-1000 MHz	10 kHz-100 MHz	220-400 MHz	400-1000 MHz
Power (max.)	2500 watts cw 5000 watts peak	50 watts cw 1000 watts peak	15,000 watts cw 50,000 watts peak	2500 watts cw 5000 watts peak	1500 watts cw 3000 watts peak
Coupling factor	50 ± 1 dB	40 ± 0.6 dB	60 ± 1 dB	50 ± 1 dB	50 ± 1 dB
Directivity	25 dB typical 20 dB min.	25 dB typical 20 dB min.	25 dB typical 20 dB min.	25 dB typical 20 dB min.	25 dB typical 20 dB min.
Insertion loss	0.15 dB max.	0.5 dB max.	0.1 dB max.	0.2 dB max.	0.2 dB max.
Impedance (main line)	50 ohms VSWR 1.2:1 max.	50 ohms VSWR 1.3:1 max.	50 ohms VSWR 1.2:1 max.	50 ohms VSWR 1.05:1 max.	50 ohms VSWR 1.05:1 max.
Connectors					
main line	Type C female	Type N female	Type EIA flange 1⅝ in.	Type C female	Type C female
coupled	Type BNC female	Type BNC female	Type BNC female	Type BNC female	Type BNC female
Weight (max.)	1.4 kg. 3.0 lb	0.9 kg. 2.0 lb	6.8 kg. 15.0 lb	0.6 kg. 1.2 lb	0.6 kg. 1.2 lb
Size (approximate W × H × D)	26.6 × 8.1 × 7.6 cm 10.1 × 3.2 × 3.0 in.	12.7 × 5.1 × 3.8 cm 5.0 × 2.0 × 1.5 in.	25.4 × 10.2 × 10.2 cm 10.1 × 4.0 × 4.0 in.	8.3 × 3.2 × 5.2 cm 3.3 × 1.3 × 2.1 in.	8.3 × 3.2 × 5.2 cm 3.3 × 1.3 × 2.1 in.

Power combiner/dividers

Models PC1000 and PC2000, selected primarily according to power-handling capability, may be used either as power combiners or as dividers for general rf testing. They either combine the signals from four amplifiers or divide the signal from a single amplifier into four outputs. Ultra-broad operating bandwidth.

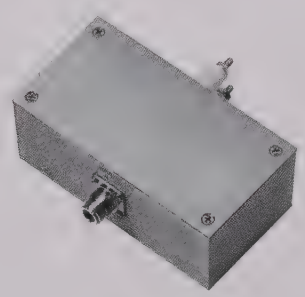
SPECIFICATIONS

	Model PC1000		Model PC2000
Frequency range	at 1-1000 MHz	at 2-500 MHz	1-1000 MHz
Insertion loss			
typical	0.8 dB	0.6 dB	0.6 dB
maximum	1.2 dB	0.8 dB	1.0 dB
Coupling	– 6 dB	– 6 dB	– 6 dB
Power at combined port	15 watts	25 watts	100 watts
Isolation			
typical	25 dB	30 dB	25 dB
minimum	20 dB	25 dB	20 dB
Impedance (all ports)	50 ohms	50 ohms	50 ohms
VSWR (maximum at all ports)	1.5:1	1.3:1	1.5:1
Phase unbalance			
(degrees maximum)	6	4	6
Connectors			
combined port	SMA female		N female
divided ports	SMA female		SMA female
Size (W × H × D)	5.1 × 5.1 × 12.7 cm 2.0 × 2.0 × 5.0 in.		12.7 × 5.9 × 15.3 cm 5.0 × 2.3 × 6.0 in.

High-power rf matching transformers

Amplifier Research rf matching transformers permit matched impedance between our high-power broadband rf amplifiers (50-ohm output impedance) and instruments of related technologies requiring rf power such as ultrasonic generators, lasers, rf heaters, and many piezoelectric devices. Power ratings to 2000 watts cw, 5000 watts pulse.

Insertion loss . . . . . 0.35 dB maximum
VSWR . . . . . 1.3:1 maximum



SPECIFICATIONS

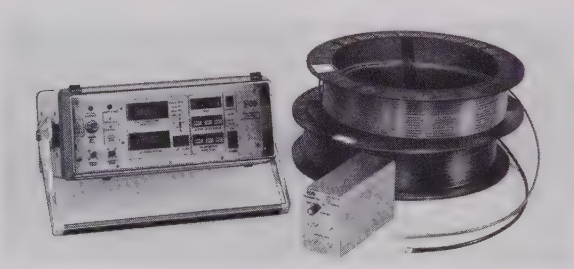
Model	Frequency Range	Power Rating		Input		Output	
		watts cw	watts pulse	impedance	connector	impedance	connector
MT 1001	1-220 MHz	500	1500	50Ω	Type N	12.5Ω	screw terminals
MT 1002	1-220 MHz	500	1500	50Ω	Type N	200Ω	screw terminals
MT 1003	1-220 MHz	2000	5000	50Ω	Type C	12.5Ω	screw terminals
MT 1004	10-220 MHz	2000	5000	50Ω	Type C	200Ω	screw terminals
MT 1005	10kHz-10MHz	2000	5000	50Ω	Type C	12.5Ω	screw terminals
MT 1006	10kHz-10MHz	2000	5000	50Ω	Type C	200Ω	screw terminals

ELECTRO OPTIC DEVELOPMENTS

Wideband fiberoptic links

Differing mainly in bandwidth, input sensitivity, and certain control refinements, these three fiberoptic telemetry systems are designed for the faithful transmission of broadband analog data in the midst of high-intensity (up to 100 kV/m) electromagnetic fields, EMP, and nuclear radioactivity.

Four sensor inputs are standard on the Sentinel and Sentry systems, while the FOL150S has one input as standard and four as an option. Transmitters in all three systems are battery-powered and shielded against the aforementioned severe environments.



Input attenuation is accomplished through integral switchable attenuators, adjustable in the Sentinel and Sentry to 45 dB in 3-dB steps, and in the FOL150S to 60 dB in 4-dB steps. A switchable active integrator with two time constants is standard in the Sentinel and Sentry, optional in the FOL150S.

Automatic level control (ALC), unique to these systems, reduces problems created by poorly-mated optical connectors and other familiar optical-link aberrations. An IEEE-488 interface permits fully automated testing, continuous monitoring of system status, and easy information interchange with host computers.

SPECIFICATIONS

Model Number	SENTINEL 1000FOL	SENTRY 1000FOL	FOL150S
3-dB bandwidth	1.2 kHz–1.1 GHz	1.2 kHz–1.1 GHz	30 Hz–150 MHz
1-dB bandwidth	1.8 kHz–1.0 GHz	1.8 kHz–1.0 GHz	50 Hz–140 MHz
SNR (p-p signal/rms noise)	≥45 dB	≥38 dB	≥40 dB
Input sensitivity for rated SNR	22.3 mV p-p	22.3 mV p-p	7 mV p-p
Passband flatness	± 1 dB	± 1 dB	± 1 dB
System gain (0 dB attenuation)	21 dB	21 dB	31 dB
Pulse response overshoot	≤5%	≤5%	≤5%
Input attenuation	0–45 dB (3-dB steps)	0–45 dB (3-dB steps)	0–60 dB (4-dB steps)
Active integrator time constants	1 and 10 μs	1 and 10 μs	1 and 10 μs (option)
Output signal level (into 50 ohms)	– 8 dBm (250 mV p-p)	– 8 dBm (250 mV p-p)	– 8 dBm (250 mV p-p)
Input/output impedance	50 Ω	50 Ω	50 Ω
Harmonic distortion	≤– 34 dBc	≤– 34 dBc	THD 2%
Squarewave calibrate signal	250 mV p-p @ 100 kHz	250 mV p-p @ 100 kHz	250 mV p-p @ 100 kHz
Maximum EMI environment	100 kV/meter	100 kV/meter	100 kV/meter
Operating temp range, transmitter	– 5 to + 40°C	– 5 to + 40°C	0 to 45°C
Operating temp range, receiver	5 to 40°C	5 to 40°C	0 to 45°C
Transmitter battery operating time	8 hr continuous 500 hr standby	8 hr continuous 500 hr standby	10 hr continuous 300 hr standby
Mechanical details			
Transmitter: dimensions (mm) weight	100 Dia. × 220L 2.2 kg	100 Dia. × 220L 2.2 kg	70W × 100H × 320D 5.0 kg
Receiver: dimensions (mm) weight	300W × 150H × 315D 6.6 kg	300W × 150H × 315D 6.6 kg	364W × 147H × 262D 7.5 kg
Fiberoptic cable length	50 m standard, 400 m maximum	50 m standard, 400 m maximum	50 m standard, 400 m maximum

Fiberoptic CCTV system

For EMI and EMP environments

The FOL CCTV system provides interference-free transmission of video signals in hostile EMI environments. It can be used for closed-circuit television monitoring in EMP and EMC testing, and in the vicinity of high electromagnetic fields.

- Video camera shielded to 100kV/m
- Transmission up to 250 meters via fiberoptic cables
- 8 hrs continuous battery operation or external power supply

- Remote control of video camera
- Range of lens and monitor options

The system consists of:

- An EMI-screened video camera
- A receiver and video monitor
- Ruggedized fiberoptic cable linking the camera and monitor

The video camera unit contains a CCD camera, an electro-optic converter, and battery power supply, shielded by a double-screened metal case. This is capable of 8 hrs continuous operation and can withstand pulses of greater than 100kV/m, when powered by the internal batteries. A connecter for an external power supply is provided for very long periods of continuous operation. A 16mm lens is supplied as standard with the system, and other lens options are available.

The ac powered receiver and monitor can be supplied either in a free-standing case or configured for mounting in a 19-inch rack. Optional remote control of the camera, and alternative monitor screen sizes are available.

The video camera and monitor are connected via a ruggedized fiberoptic signal cable, and standard lengths up to 250 meters are available. A fiberoptic control cable will be included if the remote-control option is required.

SPECIFICATIONS

SYSTEM SPECIFICATION	
EMI shielding	>100kV/m
System resolution	250 lines
Camera lens	16mm
Monitor	9″
Battery life (continuous)	8hr
Fiberoptic cable length	50m

MECHANICAL DETAILS		
Camera	Width Height Depth Weight	80mm 135mm 265mm 3kg
Receiver	Width Height Depth Weight	250mm 90mm 180mm 1kg

OPTIONS	
Lenses	Wide angle Telephoto Zoom
Other monitor sizes	On request
Fiberoptic cables	100m 150m 200m 250m Other lengths on request
Remote control	On request

Extended-bandwidth TEM cells

Models TC1510 and TC3020

• Frequencies up to 750 MHz

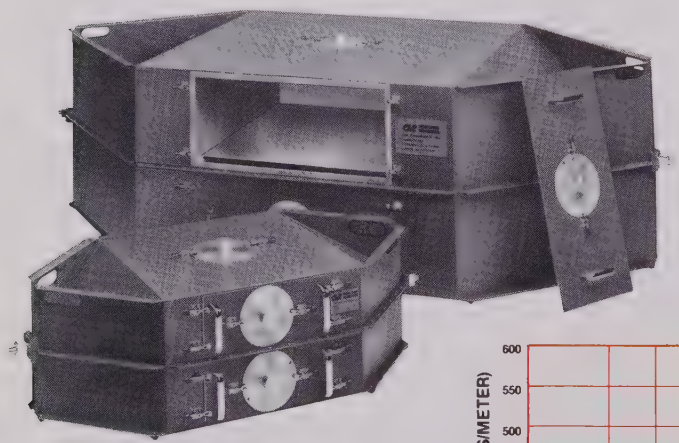
Historically, the Transverse Electromagnetic Mode (or "Crawford") test cell has been limited in its bandwidth by the available size of its test chamber. Essentially a shielded transmission line with a test chamber in its middle, the familiar TEM cell capable of holding a test object 15 cm wide had an upper frequency limit of 500 MHz.

New resonant-mode-suppression techniques developed at Amplifier Research have increased the bandwidth 50% for the same size test chamber; now, cells holding 15-cm-wide test objects have a dc-to-750-MHz bandwidth, while the larger cells, holding 30-cm-wide test objects, have a dc-to-375-MHz bandwidth.

The benefit of this greater bandwidth is immediately apparent: Many items which could not be adequately tested before in a TEM cell can now be tested in this convenient shielded chamber without resort to shielded rooms or free-space experimentation. Items such as field-strength and power meters can now be calibrated at the higher frequency levels not previously available.

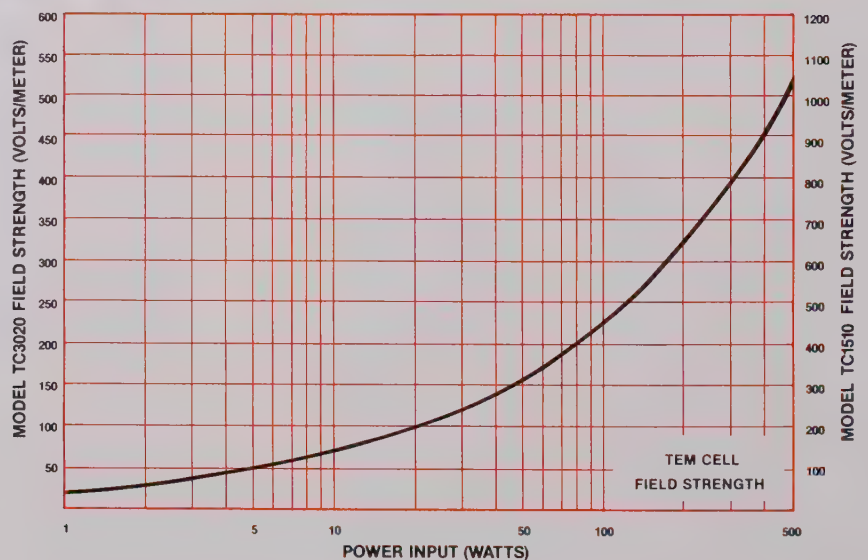
When terminated in 50 ohms, Models TC1510 and TC3020 produce a uniform high-impedance field approaching that of free space throughout the area surrounding the object under test.

The termination load used with these TEM cells must be rated at 500 watts minimum (the maximum cw input power). Our Model LR0500 30-dB 500-watt attenuator is recommended as a termination. This provides an output which can be used for making power measurements or for providing a leveling reference.



SPECIFICATIONS

	Model 1510	Model 3020
Size of device under test (W × H × D)	15.0 × 5.0 × 10.0 cm 5.9 × 2.0 × 3.9 in.	30.0 × 10.0 × 20.0 cm 11.8 × 3.9 × 7.9 in.
Power input, cw, max.	500 watts	500 watts
Frequency response	dc-750 MHz	dc-375 MHz
Impedance of cell	50 ohms	50 ohms
VSWR, maximum	1.2:1	1.2:1
Connectors (select from kit provided)	BNC female TNC female N female	BNC female TNC female N female
Cell dimensions		
Total width	110.1 cm (43.7 in.)	211.3 cm (83.2 in.)
Total height	30.0 cm (11.8 in.)	60.2 cm (23.7 in.)
Total depth	57.1 cm (22.5 in.)	106.7 cm (42.0 in.)
Septum depth	36.1 cm (14.2 in.)	72.4 cm (28.5 in.)
Access port dimensions		
Top, outer (diameter)	14.2 cm (5.6 in.)	14.2 cm (5.6 in.)
Top, inner (diameter)	2.8 cm (1.1 in.)	2.8 cm (1.1 in.)
Side, outer (diameter)	10.7 cm (4.2 in.)	14.2 cm (5.6 in.)
Side, inner (diameter)	2.8 cm (1.1 in.)	2.8 cm (1.1 in.)
Side (W × H)	29.5 × 12.7 cm (11.6 × 5.0 in.)	59.9 × 25.4 cm (23.6 × 10.0 in.)
Weight	14 kg (31 lb)	52 kg (114 lb)



Leveling preamplifiers

Model 777

- 10 kHz-220 MHz

The Model 777 solid-state leveling preamplifier provides up to 40 dB of gain control within an operational bandwidth of 10 kHz to 220 MHz for constant-field rfi susceptibility testing, power-output control, modulation envelope feedback, and simulation of current or voltage sources. A front-panel attenuator permits level adjustment of rf signal input, making the Model 777 compatible with a wide variety of rf sources, including function and sweep generators and frequency synthesizers.

It accepts a monitor input voltage of any polarity (positive, negative, or differential) from an electric-field sensor system (see page 3) or from the detected output of a directional coupler (page 4). A front-panel threshold control sets the level at which gain control is achieved. This versatile preamplifier is well suited for leveling Amplifier Research L series amplifiers, and the many other rf power amplifiers within its frequency range and power-output capabilities.

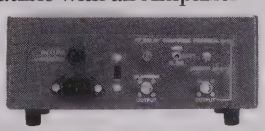
Model 999

- 1-1000 MHz
- Blanking and pedestal outputs, rf delay

The Model 999 gated leveling preamplifier provides features similar to those of the Model 777 and more: rf gain control over an extended bandwidth of 1-1000 MHz (25 dB minimum, see specifications); pedestal output of adjustable width; blanking output; rf output delay (also adjustable) at the conclusion of a blanking pulse to permit the power amplifier to settle before an rf signal is again applied.

These blanking and pulsing features make the Model 999 particularly useful in NMR spectroscopy.

The Model 999 is compatible with all Amplifier Research broadband high-power amplifiers (including our ultrabroadband W series), and other power amplifiers within its bandwidth and power-output capabilities.

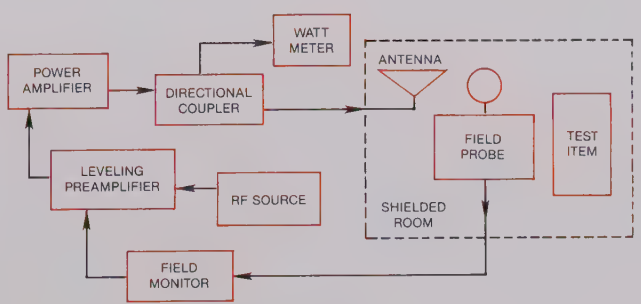


SPECIFICATIONS

	Model 777	Model 999
Rf characteristics		
Power output, minimum	10 milliwatts	10 milliwatts
Frequency range		
Full performance	10 kHz-220 MHz	1-1000 MHz
Reduced performance	5 kHz-300 MHz	
Flatness, maximum	± 0.5 dB	± 1.5 dB
Rf gain, minimum	10 dB	10 dB
Manual gain control, minimum	18 dB	20 dB
Harmonic distortion @ 10 milliwatts	Minus 25 dBc	Minus 25 dBc
Input and output impedance, nominal	50 ohms	50 ohms
Leveling characteristics		
Monitor input polarity	Plus, minus, or differential	Plus, minus, or differential
Threshold adjust range	Up to 5 V	Up to 5 V
Monitor input impedance, nominal	10,000 ohms	10,000 ohms
Closed-loop control of rf gain	40 dB to 200 MHz 27 dB to 250 MHz 23 dB to 300 MHz	25 dB minimum, 1-1000 MHz 40 dB typical, 5-500 MHz
Response	See note (1)	See note (1)
Pulsed characteristics		
Input pulse amplitude	—	+ 5 Vdc
Input impedance	—	50 ohms nominal
Rf envelope rise time (excluding rf delay)	—	0.5 microsecond
Rf envelope fall time	—	0.3 microsecond
Rf delay, adjustable (2) (5)	—	10 microseconds to 1 millisecond
Pedestal pulse amplitude (5)	—	− 5 Vdc nominal into 50 ohms
Pedestal pulse length, adjustable (3) (5)	—	10 microseconds to 10 milliseconds
Blanking pulse output	—	+ 5 Vdc nominal into 50 ohms
Connectors	Type BNC female	Type BNC female
Primary power	120/240 Vac, 50/60 Hz	120/240 Vac, 50/60 Hz
Weight	2.3 kg (5 lb)	2.3 kg (5 lb)
Size (W × H × D) (4)	24.0 × 9.0 × 16.0 cm 9.5 × 3.5 × 6.3 in.	24.0 × 9.0 × 16.0 cm 9.5 × 3.5 × 6.3 in.

Notes: (1) Response switch has multiple selection, which permits matching the detector response to avoid loop oscillation.
(2) Rf-delay time starts at the end of the blanking pulse.
(3) Pedestal-pulse length starts at the end of the blanking pulse.
(4) Adapters available for 19-inch rack mounting. Requires 5¼ inch panel space.
(5) These outputs are used to interface with Amplifier Research amplifiers having pulse mode and/or blanking features.

Typical pulse rf susceptibility test configuration

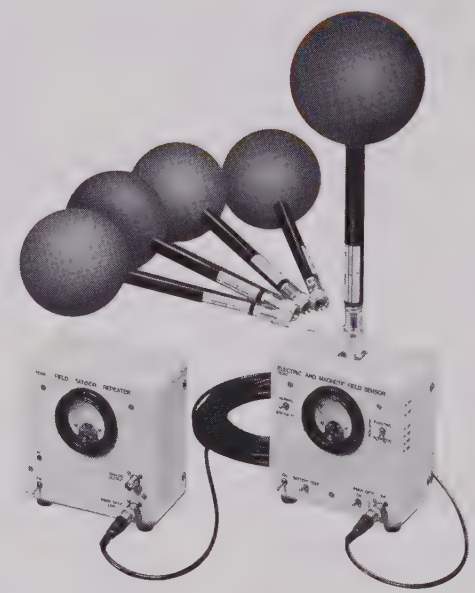


AERITALIA

Isotropic field sensor system

Sold and serviced in the U.S. by Amplifier Research, this full line of isotropic electric and magnetic field probes, when used with the Model 307TE1001-2 sensor and the Model 308TE1001-1 sensor-repeater, provides a broad selection of field-strength-measuring capabilities. These balanced isotropic probes respond to any incident field polarization, permitting the summing of all incident "E" or "H" fields sensed from all directions. The system renders highly effective measurement even in the HF and UHF near-field regions where power-density readings are less applicable. Sensor and repeater are connected via fiberoptic link. Components of the system can be purchased individually, as determined by user needs.

The 307TE1001-2 sensor comes with four rechargeable "D" cells and charger. The 308TE1001-1 repeater is line-powered at 115/230 Vac 50/60 Hz.



SPECIFICATIONS FOR ELECTRIC AND MAGNETIC FIELD PROBES

Probe type		13RV1001-1	14RV1001-1	15RV1001-1	16RV1001-1	17RV1001-1	19RV1001-1	19RV1001-2	19RV1001-3	19RV1001-4	20RV1001-1	31RV1001-1	32RV1001-1
Field		Electric			Magnetic		Electric						
Frequency(1)	± 1 dB	4-500 MHz	—	—	—	—	4 kHz-2 MHz (2)	4 kHz-1.5 MHz (3)	20 Hz-100 kHz	20 Hz-100 kHz	—	—	—
	± 2 dB	—	—	—	2-100 MHz	2-100 MHz	—	—	—	—	—	2-800 MHz	—
	± 3 dB	—	0.7-1000 MHz	1-500 MHz	—	—	3 kHz-2.5 MHz (2)	3 kHz-2 MHz (3)	20 Hz-200 kHz	20 Hz-200 kHz	3-200 MHz	—	0.5-500 MHz
Field strength range (full scale)		10 V/m	100 V/m	1,000 V/m	10 A/m	1 A/m	10/100/1,000 V/m	1/10/100 V/m	10/100/1,000 V/m	100/1,000/10,000 V/m	2 V/m	30 V/m	300 V/m
Calibration accuracy at calibration frequency		± 0.5 dB											
Isotropic response		± 1 dB		± 3 dB	± 2 dB		± 1.5 dB					± 1 dB	
Probe overload		90 V/m	900 V/m	2,000 V/m	15 A/m	9 A/m	— Not specified —					250 V/m	1500 V/m

(1) By applying correction factors shown on supplied calibration curves, a combination of these probes can be used to cover the entire frequency range from 20 Hz to 1000 MHz.
(2) 4 kHz-0.8 MHz and 3 kHz-1.2 MHz in the 1000 V/m switch position.
(3) 4 kHz-600 kHz and 3 kHz-1 MHz in the 100 V/m switch position.

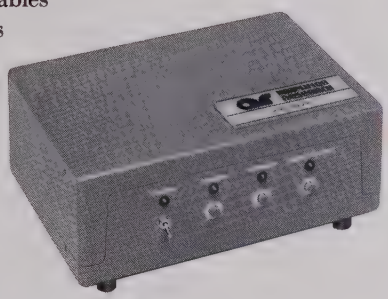
Computer interface

Model CP2001

The Model CP2001 computer interface permits remote programmable-controller operation of Amplifier Research high-power L series amplifiers, and includes provisions for pulsing and blanking.

The interface responds to TTL-level signals, and is normally connected to a controller which is in turn controlled through an IEEE 488 instrumentation bus (GPIB). It provides complete electrical isolation between controller and amplifier, and eliminates ground loops and unwanted feedback.

Amplifier operating status—power on, standby, operate, pulse—is indicated by LEDs on the unit, which also furnishes this information to the controller for verification. Cables and connectors to amplifier are included. See specifications.



SPECIFICATIONS

Interface/programmer connector	25-pin subminiature D
Inputs	Four inputs to operate relay coils at TTL level, +5 Vdc @ 10 mA each: POWER ON, STANDBY, OPERATE, PULSE.
	One input for rf blanking drives an optical coupler at TTL level, +5 Vdc @ 10 mA.
	Turn-on delay: 2 microseconds maximum Turn-off delay: 3 microseconds maximum Minimum pulse width: 1 microsecond
Outputs	Four outputs are provided through optical couplers to verify amplifier response to the four control functions: POWER ON, STANDBY, OPERATE, PULSE. Will sink +5 Vdc @ 10 mA.
Interface/amplifier connector	Twenty-five feet of multi-conductor cable is furnished with matching connectors on each end to mate the computer interface unit to an amplifier. Blanking signals are transmitted through 25 feet of coaxial cable with BNC connectors on each end.
Status monitor	LED indicators are provided for the control functions: POWER ON, STANDBY, OPERATE, PULSE.
Dimensions (W × H × D)	9.40 × 4.15 × 8.25 in. (234 × 105 × 210 mm)

Accessory kit

Model AK1000

The Model AK1000 accessory kit provides various test cables, connectors, and coax adapters useful for connecting Amplifier Research equipment into an rf test setup. This parts kit also includes special fuses not usually found in the laboratory. Excellent value. Convenience. Variety of connection possibilities.

Kit equipment:

Fabricated cables
2—type C male to C male, 150 cm (RG-225/U cable)
1—type C male to N male, 150 cm (RG-225/U cable)

Coax adapters
1—type C male to type C male
1—type C female to type C female
2—type C male to type N female
4—type N male to type BNC female
2—type BNC male to type N female
2—type BNC female to type BNC female
2—type N female to type N female

Coax connectors
8—type BNC male for RG-188A/U cable
8—type BNC male for RG-142B/U cable
8—type N male for RG-142B/U cable

Coax cable
10 meters—RG-188A/U coax cable
10 meters—RG-142B/U coax cable

Fuses (High-voltage for plate supplies)
5—type BBS-5 (5 amps, 600 volts)

Lamps
6—type 7374—28V

Amplifier Research broadband power amplifiers are widely used by government and industry for research and rf testing. From 1 watt to 10 kilowatts, from 10 kHz to 1 GHz, they operate in cw, sweep, and pulse modes with no tuning required. And they can withstand the severest mismatch conditions without damage or shutdown.

Accessories include antennas, leveling preamplifiers, TEM cells, field-strength sensors, fiberoptic telemetry systems, and directional couplers, which enhance the capabilities of our rf amplifiers. Like our amplifiers, these accessories are used in highly specialized areas of rf testing, ranging from the development of new diagnostic methods for the health-care industry to destructive testing for military purposes.

Call and tell us about your applications. Off-the-shelf or custom, you'll find AR equipment that meets your demand for rugged, dependable rf instrumentation.

160 School House Road, Souderton, PA 18964-9990 USA
TEL 215-723-8181 • TWX 510-661-6094 • FAX 215-723-5688

Warranty • *Amplifier Research warrants that all its products will be free from defects in materials and workmanship for a period of one year from date of shipment. See your equipment manual for full statement of warranty conditions and limitation of liability.*

Printed in U.S.A.

ML1002363-501 MODEL DC5000

DESCRIPTIVE INFORMATION	SUPPORT DOCUMENTS
FREQUENCY 220-400MHz	TEST DATA SHEET
POWER OUT	TEST PROCEDURE
PRIMARY POWER	ENVELOPE DWG
COOLING NATURAL CONVECTION	SALES DATA SHEET
PACKAGE 3.10 X 3.80 X 1.90	MANUAL CLASS
OPTIONS INCLUDED	REMARKS

MATERIAL PULL INFORMATION										MANUAL INFO				
ASSY LEVEL						REF	DESCRIPTION	QTY	ASSEMBLY NUMBER	S	PL	AS	SC	SCHEMATIC
1	2	3	4	5	6	DESIG								NUMBER / S
X							COUPLER, DUAL DIRECT'L	1	1002363-101	A				

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AMPLIFIER RESEARCH

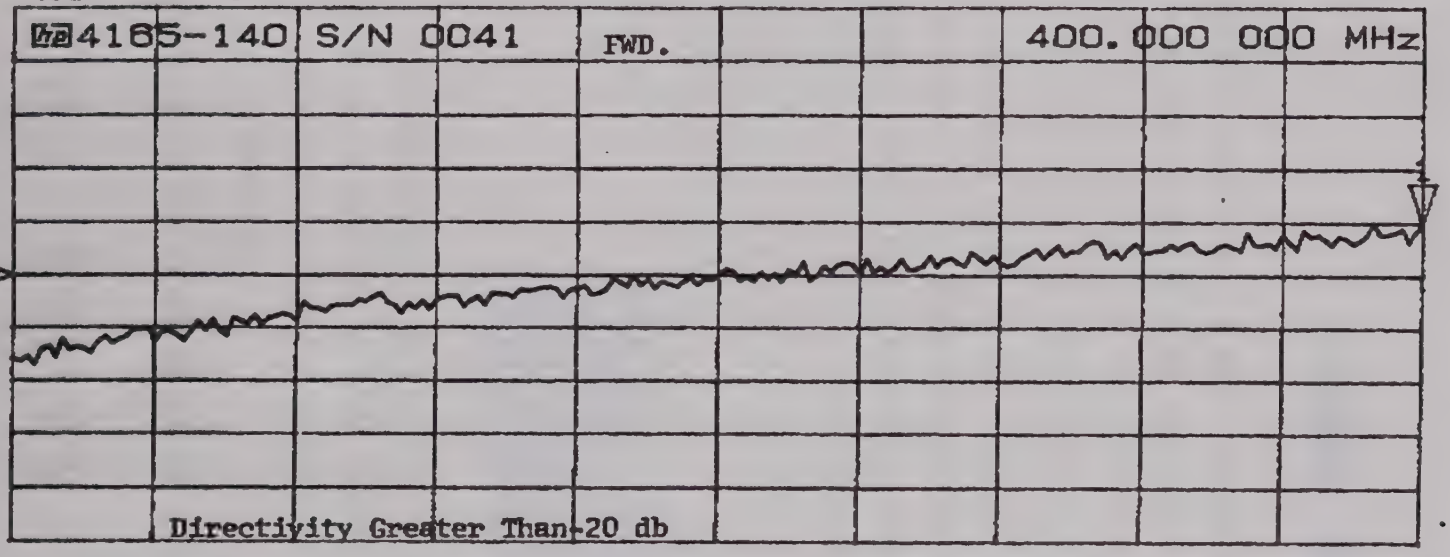
DATE	R	DATE	R	DATE	R
12 FEB 86	—				

MASTER LIST

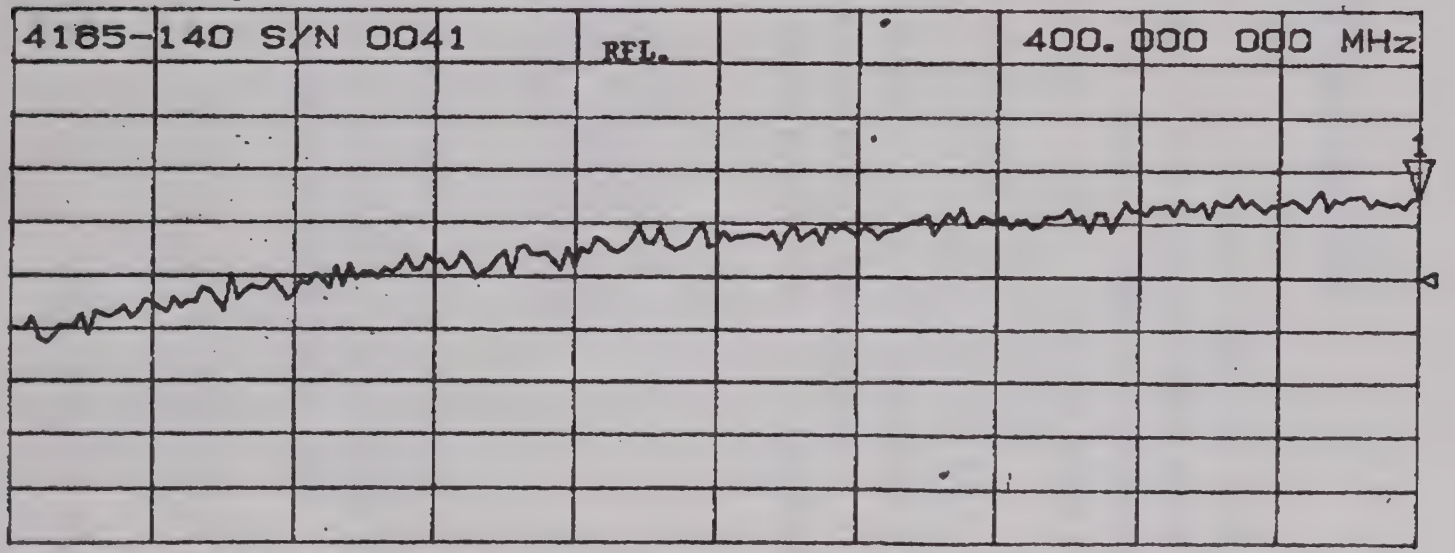
MODEL No. DC-5000 S/N. 10260/0041 DATE 6/7/90 By MBL

AMERICAN RESEARCH

CH1 S_{21} log MAG .5 dB/ REF -50 dB 1 -49.505 dB



CH2 MEM log MAG .5 dB/ REF -50 dB 1 -49.253 dB



AMPLIFIER RESEARCH

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Seller warrants (i) that seller has title to the goods sold and (ii) that the goods will be free from defects in material and workmanship for a period of one (1) year from date of shipment shown on Amplifier Research invoice. Seller's sole responsibility in fulfilling these warranties shall be to repair or replace any goods which do not conform to the foregoing warranties or, at seller's option, to give buyer credit for defective goods. Warranty service will be provided only for defective goods which are returned within the warranty period, freight costs prepaid, to Amplifier Research or its designated repair facility.

THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS. SELLER SHALL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM ANY BREACH OF WARRANTY.

No person other than an officer of Amplifier Research Corporation, has any authority to bind seller to any affirmation, representation or warranty except as specifically included in the preceding terms and conditions.

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